

# DR6305 3 PHASE VOLTAGE AND PHASE MONITOR



## DESCRIPTION

The DR6305 Phase Monitor is a multi-functional measurement instrument that provides:

1. Measurement of the voltage of 2 phases of a 3 phase power line to determine if all phases are present. The instrument outputs 0/20 mA and 0/-20 mA representing voltage for phase A to B and C to B respectively. One output switches between the 2 currents every 5 seconds. Only one bipolar input on the PLC is required to read voltage levels.
2. An optically isolated transistor switch output if voltage drops below preset level.
3. An optically isolated transistor switch for the indication of proper phase rotation.
4. An LED display to indicate
  - a. which current is being output
  - b. phase loss
  - c. phase reversal

The DR6305 monitors either 240 VAC or 480 VAC, 3 phase and provides DC output current proportional to the voltage of Phase A and Phase C referenced to Phase B.

The DC output current alternates every 5 seconds between positive and negative to indicate A to B or C to B voltages respectively. This allows monitoring of 3 phase voltages with a single bipolar analog measuring device. The voltage level is monitored and levels below a preset level are indicated by an optically isolated transistor switch output. An LED also indicates low voltage.

Phase angle is monitored and phase reversal is indicated by an optically isolated transistor switch output. An LED to indicate phase reversal is also provided.

Internal jumpers allow the product to be used to monitor 240 V or 480 V power systems.

## SPECIFICATIONS

### POWER

10 to 30 VDC, 1.5 W

### INPUT

300 VAC or 600 VAC Full Scale,  
Jumper Selectable

### OUTPUTS

Proportional Output  
0/20 mADC at 300/600 VAC input  
between Phase A and Phase B

0/-20 mADC at 300/600 VAC input  
between Phase C and Phase B

(Switches between positive and  
negative every 5 seconds)

Optically isolated NPN transistor, normally closed, turns off on low phase voltage (<190 VAC or <380 VAC depending on input selection). Transistor is saturated switch, 50 mA maximum current, 30 VDC maximum voltage.

## CALIBRATION

**DANGER-NEVER APPLY POWER  
TO THIS UNIT WHEN  
THE COVER IS REMOVED.**

The DR6305 Phase Monitor is calibrated at the factory and does not require calibration by the user. If recalibration is desired or required, the simplest method is to use a 240 or 480 VAC 3 phase power line as the signal source.

Calibrators that will create 300 or 600 VAC 3 phase signals are not readily available. Calibration is based on 20 mA output for 300 (or 600) VAC input.

### METHOD

Connect the correct DC power to the DR6305. Make sure the 300/600 V jumper is in the correct position.

If the product is connected to a load for the signal output, disconnect one wire from the terminal and insert an accurate DC mA meter in series with the load. If no load is connected, simply connect the DC mA meter between the two output pins. The device can drive current into a zero ohm load.

A toggle switch on the front panel allows the desired output to be selected for calibration. The center position of the switch puts the unit in the timed alternate channel mode.

Optically isolated NPN transistor, normally closed, turns off on phase reversal. Transistor is saturated switch, 50 mA maximum current, 30 VDC maximum voltage.

### INDICATORS(LED)

Channel being output (AB or CB)  
Phase Loss or Low Voltage  
< 190 V (or 380 V)  
Phase Reversal

### CONTROLS

Zero and Span adjustments for each channel  
Switch to lock channel in AB or CB during calibration.  
All controls available on front panel

### ISOLATION

Three way transformer isolation, between the 3 Phase AC input voltage, output signal, and the DC power supply voltage, of at least 1500 VAC sinewave.

Before connecting the 3 phase lines to the product, adjust both ZERO controls for 0.000 mA output on their respective channel. Connect the desired 3 phase voltage to the product. Insure the phase rotation is correct by viewing the LED's for (Phase) LOSS and (Phase) REV. They should both be on.

Measure the voltage between A and B of the unit ( A - B phase). Calculate the output current for this voltage.

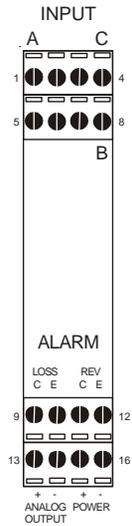
Current output =  
(Input Voltage/V) X 20 mA  
V = 300 or 600, determined by the  
jumper setting

Example:  
The input=239 VAC  
Current output=(239/300) X 20 mA =  
15.93 mA

Select the AB output. Adjust the SPAN A control until the output equals the calculated current.

Repeat the process for the voltage between C and B (C - B phase). The output current will be negative. Select the CB output. Adjust the SPAN C control for the calculated output when the green LED is illuminated.

## CONNECTIONS



TERMINAL	CONNECTION
1	Phase A Input
4	Phase C Input
8	Phase B Input
9	Phase Loss Alarm - Collector
10	Phase Loss Alarm - Emitter
11	Phase Rev. Alarm - Collector
12	Phase Rev. Alarm - Emitter
13	Analog Output + (0/20 mA)
14	Analog Output - (0/-20 mA)
15	Power +
16	Power -

## WARRANTY

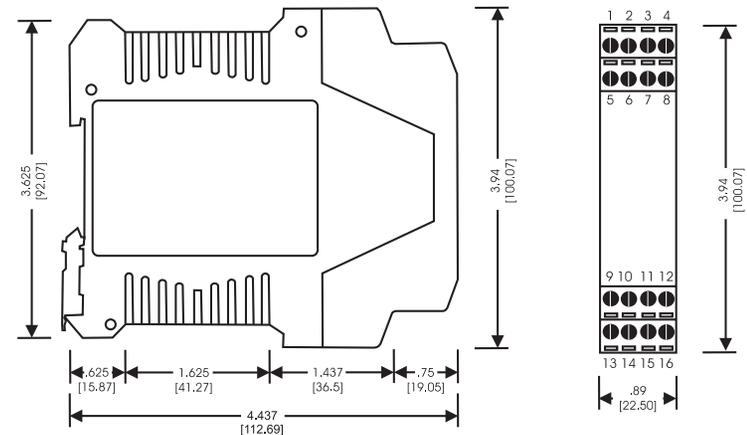
The DR1920 carries a limited 3 year warranty from the date of shipment. In the event of a failure due to defective material or workmanship, the unit will be repaired or replaced at no charge. Repairs will take place at the Wilkerson Instrument Company factory. In no event shall Wilkerson Instrument Company's responsibility exceed the original purchase price of the covered product.

The product covered by this warranty is warranted to perform to it's original specifications as published by Wilkerson Instrument Company. There is no warranty of merchantability or fitness for a particular purpose. This warranty excludes liability for any consequential damage that may accompany or follow a covered defect or failure. The warranty excludes damage from improper use, abuse, or operation contrary to instructions provided by Wilkerson Instrument Company.

## MOUNTING

The module mounts on a standard H-35 DIN rail. A spring latch holds it in place. The module is demounted by using a screw driver to release the latch. The latch is accessible at the bottom of the module.

## CASE DIMENSIONS INCHES [mm]



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